

Describe in words how the parent function is moving.

1. $F(x) = -2(x+3)^2 - 4$ _____

2. $F(x) = \left| \frac{1}{2}(x+3) \right| + 5$ _____

3. $F(x) = 2\sqrt{x-7} + 3$ _____

4. $F(x) = -(x+2)^3 - 4$ _____

5. $F(x) = x + 7$ _____

State the parent function and graph the three critical points. Then with another color move the points according to the transformation and graph it.

6. $F(x) = 2(x+3)^2 + 2$

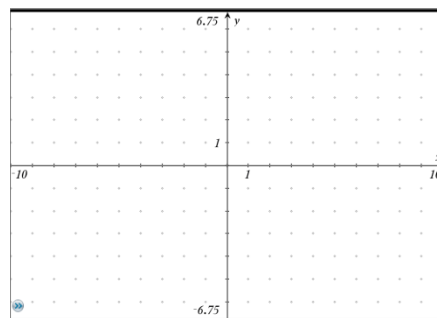
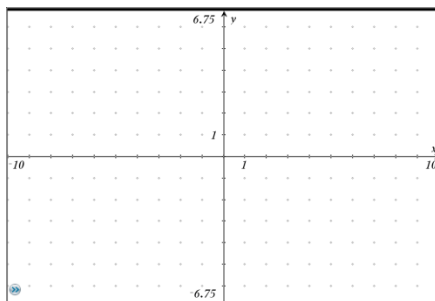
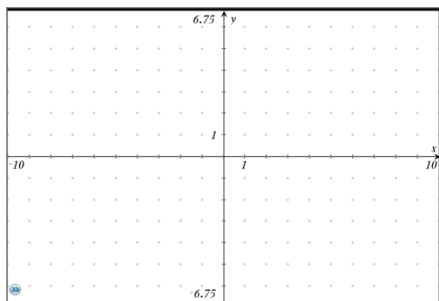
7. $F(x) = |3(x-2)| - 1$

8. $F(x) = \sqrt{-\frac{1}{2}(x+3)} - 1$

parent _____

parent _____

parent _____



9. $F(x) = 3x^3 + 2$

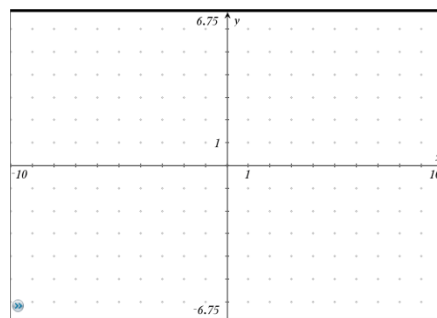
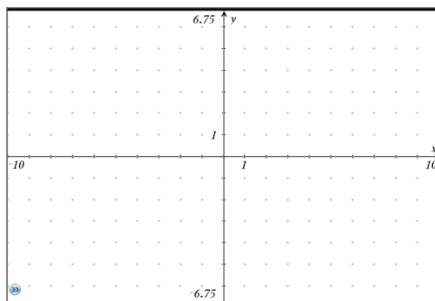
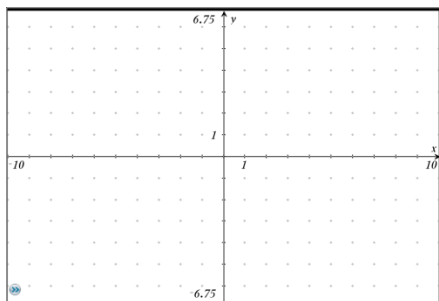
10. $F(x) = x - 3$

11. $F(x) = 2|2(x-3)| - 1$

parent _____

parent _____

parent _____



Use the following description to write the equation with the transformations.

12. parent: $f(x) = x^2$
left 3, up 7,
reflect over the y-axis

13. parent: $f(x) = \sqrt{x}$
right 2, up 1,
vertical stretch of 3

14. parent: $f(x) = x^3$
down 1, reflect x-axis
horizontal shrink of $\frac{1}{3}$

15. parent: $f(x) = |x|$
left 2, down 7,
reflect over the x-axis

16. parent: $f(x) = x^2$
right 5, up 2,
horizontal stretch of 4

17. parent: $f(x) = \sqrt{x}$
down 3, reflect y-axis
vertical shrink of $\frac{1}{4}$